PULP & PAPER

August 1988

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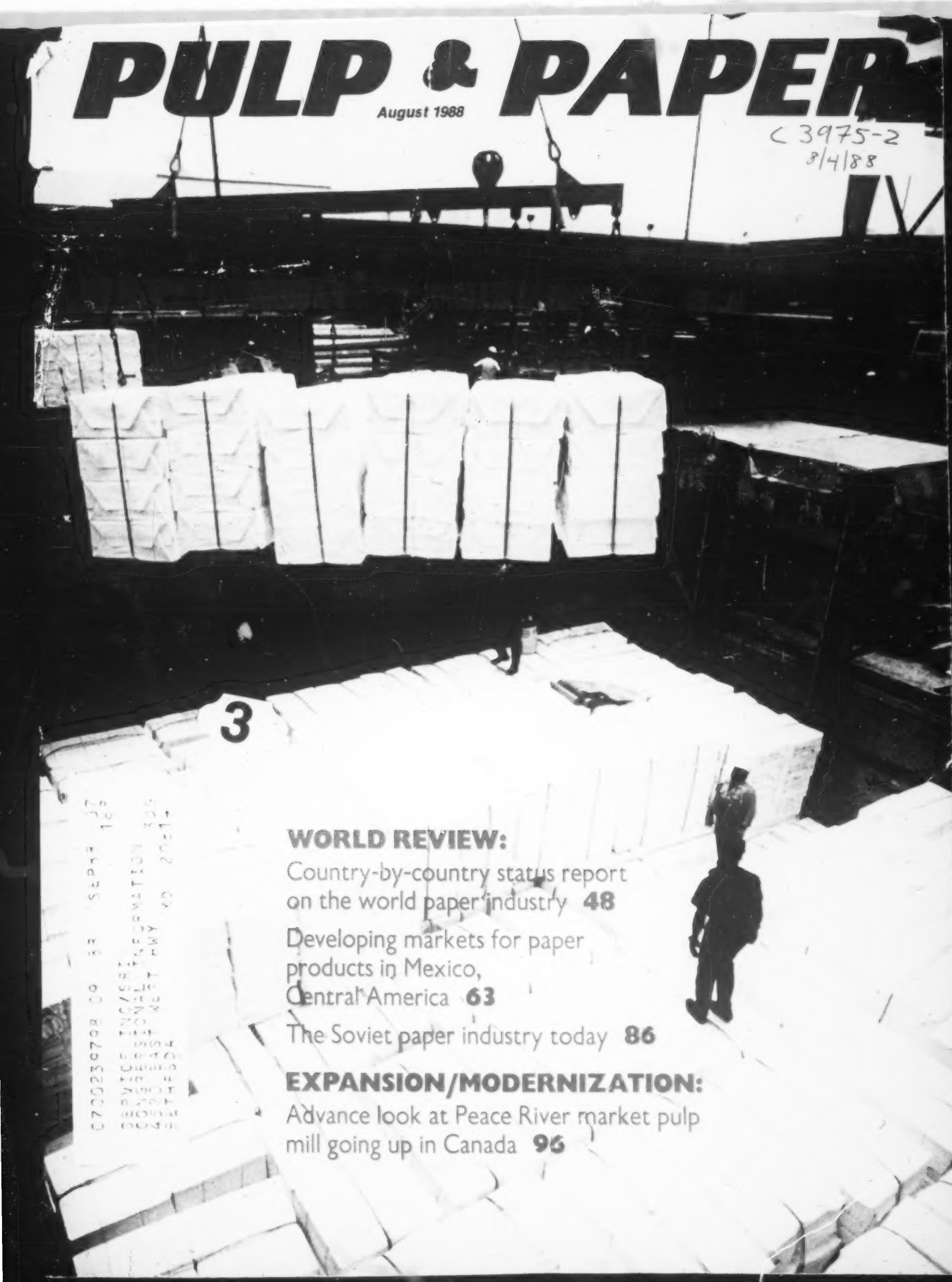

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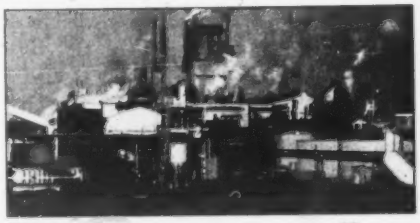

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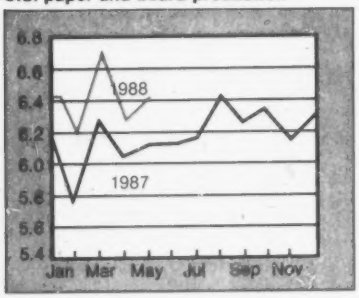
U.S. paper and board production



Paper and paperboard production totaled 6.4 million tons in May, an increase of 5.0% over the same month in 1987, according to the American Paper Institute. On a seasonally adjusted basis, production was at a record pace of 76.8 million tpy through the first five months, up 4.7% from the same time last year. Exports were running almost 18% higher through April than for the same period last year, thanks mostly to big gains in the printing and writing grades. Imports grew at a 3.8% annual pace, with a slight decline in newsprint balancing big increases for printing and writing papers and tissue.

Among major grades, printing and writing papers continued to be very strong, rising 8.6% overall. New orders were up in the 6% to 10% range, while unfilled orders ranged 30% to 82% higher than last year. Fiber box shipments set a record for May, helping to lift containerboard production for domestic use up 5.2% compared with last year.

Canadian newsprint shipments totaled 856,000 metric tons in May, up 5.0% from May 1987. Newsprint mills operated at 100%, as they have all year. Woodpulp shipments totaled 683,000 tons, up 13.8%, while mills operated at 91%. ■

	Latest month (000 short tons)		% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	May	514	2.8	5,996	5.5
Uncoated groundwood (s)	May	135	11.6	1,578	3.4
Coated paper (s)	May	600	8.3	7,422	12.6
Uncoated free sheet (s)	May	921	3.1	11,401	7.3
Other printing/writing	May	125	5.9	1,535	10.7
Total packaging and other paper (s)	May	422	6.6	5,256	2.0
Tissue	May	463	4.5	5,432	4.0
Total paper	**May**	**3,179**	**5.2**	**38,619**	**6.5**
Unbleached kraft paperboard	May	1,649	1.4	19,405	5.8
Semichemical medium	May	491	6.0	5,694	1.7
Bleached paperboard	May	360	-4.0	4,457	-0.3
Recycled paperboard	May	761	17.6	8,996	6.4
Total paperboard	**May**	**3,260**	**4.8**	**38,552**	**4.5**
Total U.S. paper and paperboard output	**May**	**6,439**	**5.0**	**77,171**	**5.5**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	April	5,003	2.5	61,276	4.5
Market pulp production	April	677	1.0	8,449	7.6
Wastepaper consumption at paper/board mills	April	1,540	7.2	18,852	5.4
Pulpwood consumption (cords)	April	8,137	3.6	97,056	3.3
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	May	24.986	5.6	127.859[6]	5.1
Containerboard inventories at U.S. box plants and mills	May 1	2,552	7.5		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	April	1,063	2.4	12,846	3.4
Imports of Canadian newsprint	April	687	-2.4	8,568[6]	-0.9
U.S. paper exports (including products)	April	495	15.9	5,939	17.9
Exports of unbleached kraft linerboard	April	205	15.8	2,233	0.4
Exports of woodpulp	April	453	16.2	5,335	15.5
Norscan pulp inventories[4]	May 31	777	-17.0		
Norscan pulp operating rates[4]	May	90%	95%	102%	98%
CANADIAN STATISTICS[5] (reported in metric tons)					
Total newsprint shipments	May	856	5.0	4,023[6]	0.9
Operating rates	May	100%	97%	100%	98%
Inventories held by U.S. consumers	May 31	1,516	14.6		
Other paper/board shipments	May	584	10.2	2,802	6.1
Woodpulp shipments (export only)	May	683	13.8	3,315	3.1
Operating rates	May	91%	90%	96%	97%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

Corrugating medium: Demand pushing supply limits—recycled board fills the gap

Grade structure: Corrugating medium, the middle fluting material used in corrugated containers, is made from both semichemical pulp and recycled fiber. In 1987, 77% of corrugating medium was made from semichemical furnish (which normally contains at least 20% recycled fiber) and 23% was "bogus" medium made from wastepaper. Basis weights of corrugating medium are 22, 26, 33, 36, and 40 lb/1,000 ft².

Standard sheet weight is 26 lb, which accounts for about 78% of production (although heavier weights have been growing in popularity). Recycled medium for equivalent uses is normally produced in slightly higher weights.

Production/capacity: U.S. production of corrugating medium rose about 5.8% from the previous year to 7.246 million tons in 1987. This reflected a 4.9% increase in corrugated box shipments.

The market for corrugating medium became tight during the second half of 1987 due to strong growth in corrugated box cut-up combined with only limited capacity expansion for semichemical medium. Semichemical medium capacity increased only 1.5% last year. As a result, recycled medium and imports have had to help fill the supply gap.

Semichemical medium production rose 4.7% in 1987, while recycled medium jumped 7.4%. Imports of medium (mainly from Canada) last year jumped nearly 30% to 129,000 tons. U.S. semichemical medium mills ran at 99% of capacity, while recycled mills did almost as well at 98%. Contributing to the tight market was Willamette Inc.'s decision to convert a medium machine to linerboard last year at its Albany, Ore., mill.

Outlook: Corrugated box shipments are expected to rise about 3.4% in 1988, followed by a 1.5% increase in 1989 reflecting a high level of U.S. manufacturing activity due to the weak dollar. Total medium production in 1988 is expected to rise close to 3% to 7.46 million tons, with semichemical up 1.7% and recycled 6.7% higher. In 1989, total medium production is expected to rise by 1.7% to nearly 7.6 million tons, with semichemical and recycled medium showing about equal growth.

American Paper Institute's November 1987 capacity survey figures have been revised upward to reflect reactivation or conversion of machines, additional incremental expansion, and operating improvements. For semichemical medium, capacity has been increased by 100,000 tons in 1988 and 150,000 tons in 1989 from the 5.711 and 5.863 million tons originally estimated for those years. Recycled capacity has been increased by 75,000 and 150,000 tons from the 1.752 and 1.764 million tons planned for 1988 and 1989, respectively. As a result, total medium capacity is expected to rise at about a 4% average annual rate over the two-year period—up from the 1.9% rate estimated in the 1987 API survey.

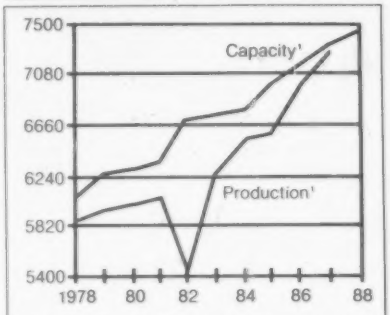
Clinch River Corp. recently restarted the 300-tpd semichemical medium mill at Harriman, Tenn., and Cascades Inc. has restarted two machines at the former Nitec Paper mill in Niagara, N.Y., making recycled medium. In addition, Nolichucky Industries Corp. plans to restart the former James River Corp. fine paper mill in Hyde Park, Mass., producing recycled medium. (In addition, Jefferson Smurfit Corp. is studying possible reactivation of an idle machine to produce recycled medium and linerboard at its Fernandina Beach, Fla., mill.)

Even on this larger capacity base, semichemical mills should run at about 98% this year and 96.6% in 1989, with recycled mills at 96% and 93%.

Prices. Semichemical medium prices last rose by $30/ton to a new list of $400 in March. Transaction prices are said to be close to the $390 to $400 level with some regional variation. The next increase in medium prices to about $430/ton will probably not take place until early 1989.

Price history at year-end for 26-lb semichemical medium in the eastern U.S. is as follows: 1980, $260; 1981, $290/$260; 1982, $240; 1983, $280; 1984, $310; 1985, $240; 1986, $290-$300 ($310 list); and 1987, $360 ($370 list). Recycled medium prices may be about $10/ton less, depending on quality.

SUPPLY/DEMAND (000 tons)



1. Represents both semichemical and recycled.

FORECAST (000 tons)

	1987	1988e	1989e
Production			
Semichemical	5,606	5,700	5,810
Recycled	1,640	1,760	1,780
Total	**7,246**	**7,460**	**7,590**
Capacity¹			
Semichemical	5,641	5,811	6,013
Recycled	1,666	1,827	1,914
Utilization rates¹			
Semichemical	99.4%	98.1%	96.6%
Recycled	98.4%	96.3%	93.0%
Imports²	129	140	145
Exports	64	55	65
Apparent U.S. consumption			
000 tons	7311	7545	7670
lb/capita	60.20	61.50	62.0
GNP ratio³	1.91	1.92	1.91

e = Estimate.
1. American Paper Institute November 1987 capacity survey figures have been revised upward. 2. Dept. of Commerce data. 3. 1,000 tons/$billion real GNP.

TOP U.S. PRODUCERS (000 tpy)

Company	Annual capacity: Semi-chem	Recycled medium	Total	Market share (%)
1. GNN	935¹	—	935	12.5
2. Stone	675	180	855	11.5
3. Weyco	685	—	685	9.2
4. Inland	205	275	480	6.4
5. Smurfit	58²	305²	363	4.9
6. IP	350	—	350	4.7
7. Mead	335	—	335	4.5
8. G-P	280³	—	280	3.7
9. PCA	270	—	270	3.6
10. Va. Fibre	265	—	265	3.6

Market share of top five companies: **44.5%**
Market share of top ten companies: **64.6%**
Total U.S. capacity (1988):
7.463 million short tons

1. Includes Great Southern Paper and Nekoosa Packaging (717,000 tpy semichemical medium) acquired from Owens-Illinois Inc. in 1987. 2. Includes 50% interest in Container Corp. of America mills (115,000 semichemical and 172,000 recycled medium) acquired in 1986. 3. Includes 50% interest in 170,000-tpy semichemical medium machine at Sonoco Products Co.'s Hartsville, S.C., mill; G-P takes the production.

PAPER PRODUCTION GROWTH CONTINUES FOR THE FIFTH RECORD YEAR IN A ROW

Asia, North America, and Europe set output records; paper and board demand remains strong, and outlook for 1988 is good

By PETER SUTTON, JOHN PEARSON, HUGH O'BRIAN, International Editors

The world made 215,611,000 tons of paper and paperboard in 1987, 6% more than in 1986. It was the fifth record year in a row for output. Pulp production totaled 156 million tons, up nearly 5%, also continuing a five-year climb. And 1988 is likely to keep the trend going upward. Is no end in sight?

Production has kept in step with the rise in apparent paper and board consumption. It too has increased every year since the bad year of 1982. In 1987, it was 214 million tons, up nearly 6%. However, the world's population rose again, such that the world's per capita consumption stayed at 42 kg (92 lb).

The amount traded remained about the same compared with 1986: slightly more than one ton of paper in every five crosses a frontier. For pulp, it's less—about 16% of output is traded. The world's export and import figures almost balanced, a gap of 1.2 million tons for paper and board and of just 35,000 tons for pulp.

It was a good year for many papermaking nations, and of course records were set for most of the big producers. The unfortunate exceptions were several countries in southeast Asia and Africa.

North America had a bumper year. In many pulp, paper, and board sectors, mills had difficulty meeting demand and, naturally enough, U.S. domestic buyers took precedence over export trade. The U.S. continues to dominate the league table of paper producers, making 31% of the world's entire output. The Canadians, taking advantage of the decline in the U.S. dollar's value against other major currencies, boosted their exports 6%.

Many European countries also made more than ever before during a year in which the jump in demand, particularly for printings/writing grades, came as a surprise to many. Ten of the 19 western European nations enjoyed record paper and board production levels. The three export-oriented Nordic nations produced a million tons more paper and board than in 1986, crossing

All figures in this review are in metric tons.

World's top 20 producing and consuming countries

PAPER AND BOARD PRODUCTION (000 metric tons)

	1986	% change 1986/85
1. U.S.	67,544	+5.0
2. Japan	22,537	+7.0
3. Canada	16,046	+5.1
4. People's Rep. China	11,411	+14.3
5. U.S.S.R.	11,036	+6.2
6. Fed. Rep. Germany	9,924	+5.5
7. Finland	8,012	+6.1
8. Sweden	7,811	+6.1
9. France	5,832	+4.3
10. Italy	4,987	+6.9
11. Brazil	4,678	+3.4
12. U.K.	4,183	+6.1
13. Spain	3,288	+4.3
14. Rep. Korea	3,163	+14.1
15. Taiwan	2,737	+8.3
16. Mexico	2,575	+4.3
17. Austria	2,357	+8.3
18. Netherlands	2,168	+6.9
19. India	1,886	+4.8
20. Australia	1,678	+2.2

PULP PRODUCTION (000 metric tons)

	1986	% change 1986/85
1. U.S.	54,036	+4.5
2. Canada	23,021	+6.1
3. U.S.S.R.	11,610	+5.9
4. Sweden	9,973	+6.2
5. Japan	9,733	+5.3
6. Finland	8,467	+6.8
7. People's Rep. China	7,204	+9.4
8. Brazil	4,031	+0.9
9. Fed. Rep. Germany	2,259	+1.8
10. France	2,092	+3.5
11. Norway	1,889	−0.4
12. South Africa	1,840	−1.9
13. Spain	1,598	+6.3
14. Portugal	1,462	+4.1
15. Austria	1,333	−0.8
16. New Zealand	1,108	−0.2
17. Czechoslovakia	1,090	+0.4
18. India	1,050	+0.0
19. Australia	964	+10.8
20. Poland	964	+10.8

PER CAPITA CONSUMPTION (lb/year)

	1986	% change 1986/85
1. U.S.	540	+0.4
2. Sweden	524	+3.9
3. Netherlands	488	+24.9
4. Canada	469	+1.2
5. Finland	444	−0.3
6. Switzerland	416	−0.7
7. Fed. Rep. Germany	407	−0.1
8. Denmark	403	−0.2
9. Japan	381	−0.2
10. Belgium	374	+0.0
11. New Zealand	352	+1.4
12. Hong Kong	326	−3.3
13. Australia	315	−1.5
14. U.K.	312	−0.1
15. Norway	312	−0.5
16. Taiwan	284	−1.3
17. Austria	279	−0.1
18. France	275	−0.7
19. Iceland	244	−0.1
20. Italy	207	+0.3

the 17-million-ton mark. Pulp output increased by approximately the same amount and topped 20 million tons for the first time. East European countries had more modest increases, with the exception of the Soviet Union, where preliminary output figures show an increase of 6%.

Earthquakes aside, New Zealand and Australia are both showing much more activity. Though paper and board output was close to the previous year, companies in these two countries are busy merging and acquiring and investing in new capacity.

Japan's paper and board output continued its inexorable climb even while the industry carried out some extensive restructuring. One major difference in 1987 was that this was the largest annual increase in paper and board output (+7.2%) in its current record run since 1983.

China continued its steeply rising increase in paper and board output, up 14% to 11.4 million tons, and more is expected as some modernization programs and plans to improve the fiber supply come to fruition.

Other rapidly growing Asian producers did not meet their goals, but Rep. Korea still managed to raise production by 14%, crossing 3 million tons, and Taiwan had to be satisfied with an 8% rise. These four plus Turkey, which is perking up, account for 90% of Asia's output, but newcomers are beginning to grow now, Indonesia and Thailand in particular. India carries on, steadily raising output, and it has scored some noticeable successes in producing newsprint. However, old problems remain, such as expensive energy and a lack of available raw materials.

Several of the key Latin American nations did better than expected in still-difficult economic conditions. The future for the pulp and paper industries of Brazil, Chile, Argentina (which joined the million-tonners' class for the first time), and Venezuela is looking brighter than it has for several years. International investors are now being attracted by the fast-growing forests and low-cost bases that these countries have to offer. By 1992, several large pulp projects will be coming onstream in Brazil and Chile.

Africa remains a sorry tale, with output almost stagnant, and measurement has been made much more difficult following South Africa's decision not to publicize its production figures. It seems that the present process of economic restructuring in several key countries will have to be completed before output picks up. ■

AFRICA

Production of pulp and paper by the African countries was an estimated 2.4 million tons in 1987, the same level as the previous year. Pulp output also was approximately 2.4 million tons, practically unchanged from 1986.

Any appraisal of the continent's pulp and paper industry is dominated by the performance of South Africa, which accounts for roughly two-thirds of the continent's output of paper and board and about three-quarters of its pulp production. Unfortunately, South Africa's output and trade statistics are no longer published, but it is possible to make reasonable estimates based on a variety of freely available publications.

These show that 1987 was a relatively good year for the two major producers, Sappi and Mondi. Foreign trade in commodity pulp and paper grades was aided by a rise in international prices and by the twin fall of the U.S. dollar and the rand against other major currencies. On the domestic market, price hikes were possible for printing/writing and packaging papers, although buyers presented some stiff opposition.

1987 also brought its share of problems for South Africa's producers. A severe flood affected Mondi's Merebank newsprint mill, writing off thousands of tons of paper stocks and closing the mill for nearly a month. Sappi escaped the worst of the flooding but was hit by a chemical explosion that closed No. 2 pulp line at its Ngodwana market pulp and kraftliner mill (sabotage was ruled out by experts). Full production was resumed within two months. But neither incident seriously affected the companies' trading performances.

Elsewhere in Africa, fortunes were varied. The high foreign debt of several nations, which must be serviced in hard currency, has led to a shortage of dollars to pay for market pulp and machine spare parts. In some cases, concurrent economic reform, involving price controls or the removal of import tariffs, made things worse for the domestic producers. The picture was brighter for the continent's market pulp producers. Both Morocco, with a capacity of 100,000 tpy of eucalyptus pulp, and Swaziland, which makes 180,000 tpy of unbleached softwood grades, found their products in demand and were able to run at 100% capacity.

Few plans exist for capital expansion. In the case of South Africa, the full benefits of a wave of expansions completed at the start of the current economic boom are now being realized. Among the others, investment levels will remain small. One possible exception is Zimbabwe, where plans are slowly taking shape for a 60,000-tpy bleached kraft pulp mill and fine paper machine, as well as the possible expansion of mechanical pulping and newsprint capacity. 1988 is thus expected to be another static year. Apart from the inexorable growth in South Africa's trading performance, the other nations are likely to remain in the doldrums. ■

REVIEW OF TOP 20 NATIONS IN PULP/PAPER PRODUCTION

Australia

Population: 16,249,000. Per capita consumption of paper and board: 146 kg/ 321 lb. Paper and board mills: 18. Pulp mills: 19 (sulfate: 2; sulfite: 1; soda: 2; semichemical: 5; mechanical: 8; nonwood: 1).

Paper/board capacity: 2,035,000 tons **Pulp capacity:** 1,100,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	1,177	1,234	775	800	92	98
Board	465	444	—	—	—	7
Total	**1,642**	**1,678**	**775**	**800**	**92**	**105**
Chemical woodpulp	503	585	220	279	20	70
Mechanicals, other pulps	367	379	3	1	—	—
Total	**870**	**964**	**223**	**280**	**20**	**70**
Market pulp	—	—	—	—	—	—

Austria

Population: 7,571,700. Per capita consumption of paper and board: 132 kg/ 290 lb. Paper and board mills: 33. Pulp mills: 15 (sulfate: 3; sulfite: 7; semichemical: 1; mechanical: 5).

Paper/board capacity: 2,709,000 tons **Pulp capacity:** 1,603,000
Operating rate 1987: 87% **Operating rate 1987:** 83%

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	1,832	1,989	318	338	1,303	1,449
Board	351	368	23	24	262	269
Total	**2,183**	**2,357**	**341**	**362**	**1,565**	**1,718**
Chemical woodpulp	1035	1,014	291	339	330	281
Mechanicals, other pulps	309	319	25	13	—	1
Total	**1,344**	**1,333**	**316**	**352**	**330**	**282**
Market pulp	408	363	316	352	330	282

Brazil

Population: 141,500,000. Per capita consumption of paper and board: 31 kg/ 68 lb. Paper and board mills: 146. Pulp mills: 38 (sulfate: 16; sulfite: 3; soda: 6; semichemical: 4; nonwood: 9).

Paper/board capacity: 5,364,000 tons **Pulp capacity:** 4,474,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	4,026	4,150	279	265	649	593
Board	499	528	2	3	43	16
Total	**4,525**	**4,678**	**281**	**268**	**692**	**609**
Chemical woodpulp	3,517	3,568	36	44	879	807
Mechanicals, other pulps	480	463	4	1	17	9
Total	**3,997**	**4,031**	**40**	**45**	**896**	**816**
Market pulp	1,536	1,507	40	45	896	816

Canada

Population: 25,600,000. Per capita consumption of paper and board: 218 kg/ 480 lb. Paper and board mills: 77. Pulp mills: 34.

Paper/board capacity: 16,520 tons **Pulp capacity:** 24,740 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	14,535	15,304	421	471	10,413	11,072
Board	726	742	219	229	66	80
Total	**15,261**	**16,046**	**640**	**700**	**10,479**	**11,152**
Chemical woodpulp	12,218	12,957	172	160	7,083	7,467
Mechanicals, other pulps	9,470	10,064	47	38	776	785
Total	**21,688**	**23,021**	**219**	**198**	**7,859**	**8,252**
Market pulp	7,366	8,013	—	—	6,690	7,106

China, People's Rep. of

Population: 1,080,000,000. Per capita consumption of paper and board: 12 kg/ 25 lbe. Paper and board mills: 5,000e Pulp mills: 9,000

Paper/board capacity: 12,500,000e tons **Pulp capacity:** 9,000,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	2,742	3,022e	175	221	104	127
Packaging paper/board	4,594	5,444e	878	1,101	163	190
Other paper/board	2,650	2,945e	165	14	40	3
Total	**9,986**	**11,411e**	**1,218**	**1,336**	**307**	**320**
Chemical woodpulp	942	994	483	638	—	—
Mechanical pulp	402	384e	26	26	—	—
Reed, bamboo, other pulps	5,239	5,826	67	19	—	—
Total	**6,583**	**7,204e**	**576**	**683**	**7**	**5**
Market pulp	196	196e	576	683	7	5

Finland

Population: 4,932,000. Per capita consumption or paper and board: 196 kg/ 431 lb. Paper and board mills: 46. Pulp mills: 47 (sulfate: 18; sulfite: 3; semichemical: 3; mechanical: 23).

Paper/board capacity: 8,590,000 tons **Pulp capacity:** 9,085,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	6,489	6,913	53	64	5,335	5,837
Board	1,060	1,090	20	21	828	900
Total	**7,549**	**8,003**	**73**	**85**	**6,163**	**6,737**
Chemical woodpulp	4,935	5,277	27	52	1,348	1,478
Mechanicals, other pulps	2,993	3,190	48	40	131	163
Total	**7,928**	**8,467**	**75**	**92**	**1,479**	**1,641**
Market pulp	1,819	2,027	75	92	1,479	1,641

France

Population: 55,800,000. Per capita consumption of paper and board: 130 kg/ 286 lb. Paper and board mills: 147. Pulp mills: 21 (sulfate 7; sulfite: 2; semichemical: 1; mechanical: 10; nonwood 1).

Paper/board capacity: 6,639,000 tons **Pulp capacity:** 2,240,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	5,065	5,277	2,239	2,406	1,291	1,454
Board	529	555	560	633	146	155
Total	**5,594**	**5,832**	**2,799**	**3,039**	**1,437**	**1,609**
Chemical woodpulp	1,585	1,623	1,641	1,633	340	398
Mechanicals, other pulps	437	469	128	132	5	6
Total	**2,022**	**2,092**	**1,769**	**1,765**	**345**	**404**
Market pulp	712	718	1,769	1,765	345	404

Germany, Fed. Rep.

Population: 61,150,000. Per capita consumption of paper and board: 191 kg/ 420 lb. Paper and board mills: 175. Pulp mills: 35 (sulfite: 8; semichemical: 1; mechanical: 24).

Paper/board capacity: 10,931,000 tons **Pulp capacity:** 2,490,000
Operating rate 1987: 93% **Operating rate 1987:** 91%

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	8,468	8,949	4,471	4,711	2,463	2,793
Board	939	975	430	423	559	591
Total	**9,407**	**9,924**	**4,901**	**5,134**	**3,022**	**3,384**
Chemical woodpulp	816	826	3,009	3,134	127	140
Mechanicals, other pulps	1,403	1,433	67	66	—	—
Total	**2,219**	**2,259**	**3,076**	**3,200**	**127**	**140**
Market pulp	248	282	3,076	3,200	127	140

ASIA/ AUSTRAL-ASIA

Output of paper and board in Asia/Australasia grew to a record level of 45.1 million tons in 1987, up 9.8% from 1986. Output of pulp from this region was over 20 million tons for the first time, a rise of 6.4%.

It was a momentous year. Japan, Rep. Korea, Taiwan, and China recorded impressive increases in production. Meanwhile, New Zealand and Australia began a major phase of expansion and restructuring, and Indonesia and Thailand began to exploit their natural forest resources.

Japan is by far the region's major producer, making nearly 50% of the paper and board and 48% of the pulp. In 1987, Japan's domestic economy grew faster than expected, with GNP up by 4.2% in real terms from 1986. Domestic demand for paper and board was even better, rising by 7.2%. Advertising for consumer goods fueled paper demand, and board demand was helped by an upswing in containerboard packaging.

Despite the surge in the value of the yen against the dollar, the level of imports was flat at around 866,000 tons. The reasons were tight world markets in many grades plus soft prices on the domestic market, which discouraged importers. Domestic pulp production was up 5.4%, to 9.73 million tons. Pulp imports increased sharply, however, by 8.5%.

Japanese companies have invested heavily to improve efficiency, with capital spending concentrated on newsprint and coated paper lines. Companies are also now increasing their investments overseas, with North America the main target for investment. In the past, investments have taken the form of joint ventures, but companies are now more likely to buy and manage their own subsidiaries or to build their own mills.

People's Rep. China overtook the U.S.S.R. to become the world's fourth-largest producer of paper and board in 1987. Its output passed the 11-million-ton mark for the first time, reaching 11.4 million tons, up from only 9.99 million tons in 1986. China's target for the next 15 to 25 years is to reach a per capita consumption of 40 kg (88 lb), up from the present 11.5 kg (25.3 lb) average. The current levels of investment spending imply that this is a realistic goal.

Rep. Korean producers produced 3.16 million tons of paper and board in 1987, an increase of 14.1% from 1986. However, the year was not problem-free. Steadily rising market pulp prices, plus political reform that led to strikes and eventually to high wage settlements, severely impaired company profitability. And the Korean currency, the won, rose steadily against the dollar, hurting the ability of producers to export their products. Also, a faster-than-expected relaxation in import duties exposed the industry to added competition on the domestic market and led to restructuring, especially in the board sector, as producers switched from waste-based linerboard to duplex and coated grades.

Growth in output in Taiwan was a lower-than-expected 8.5%, or 2.74 million tons. The reasons were the slowdown in export trade as the Taiwanese dollar rose against the U.S. dollar, higher imports as a result of lower tariff barriers, and a delay in the deregulation of newspapers, which hit demand for newsprint. Despite these setbacks, investment by the domestic industry is continuing apace and is expected to rise in 1988.

The major Australasian nations, Australia and New Zealand, embarked on a new phase of development in 1987, with restructuring and investment at home and abroad the key words. Australian output was a relatively flat 1.68 million tons, up 2.1%. However, the list of investments planned by the major companies is impressive. They include a 400,000-tpy bleached eucalyptus pulp mill to be built by APPM together with the Canadian Noranda group, a newsprint paper machine to be built by ANM at its Albury, Australia, mill, and another possible eucalyptus pulp mill to be built by APM Ltd. with international partners.

Expansion by acquisition was also important, with North American purchases particularly notable. Smorgon Consolidated Industries bought FSG Paper's newsprint mill in Chicago, Ill., while the Pratt Group bought the Georgia Kraft Co. linerboard mill. Rumors are that Amcor, the parent of APM, will be next to buy into North America.

In New Zealand, paper and board output fell 4% to 644,000 tons, mainly due to a major earthquake in March, which shut down all three of Tasman Pulp and Paper Co. Ltd.'s newsprint paper machines (total capacity 330,000 tpy) as well as its 170,000-tpy market pulp line. Despite this, pulp output was 1.11 million tons in 1987.

Restructuring and investment were the strong features of 1987, and New Zealand's biggest industrial company, Fletcher Challenge, was at the center of events. It bought 100% of the 70,000-tpy Bio-Bio newsprint mill in Chile and increased its majority shareholdings in Canada's Crown Forest Products and BCFP (recently, the group has decided to merge its Canadian operations). At home, Fletcher Challenge won control of Winstone Pulp Industries' 200,000-tpy CTMP mill but lost its battle for control of New Zealand Forest Products, the latter being sold after a long series of takeover attempts to Elders Resources of Australia. Recently, Fletcher Challenge bought up 50% of Australia's news-

India

Population: 700,000,000. Per capita consumption of paper and board: 2 kg/5 lb. Paper and board mills: 300. Pulp mills: 1.

Paper/board capacity: 2,760,000 tons **Pulp capacity:** —
Operating rate 1987: 68% **Operating rate 1987:** — %

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	1,100	1,136	194	189	—	—
Board	700	750	—	—	—	—
Total	**1,800**	**1,886**	**—**	**—**	**—**	**—**
Chemical woodpulp	—	—	—	—	—	—
Mechanicals, other pulps	—	—	—	—	—	—
Total	**—**	**—**	**—**	**—**	**—**	**—**
Market pulp	30	15	290	300	—	—

Italy

Population: 57,319,000. Per capita consumption of paper and board: 104 kg/229 lb. Paper and board mills: 340. Pulp mills: 21 (sulfite: 2; semichemical: 3; mechanical: 15; nonwood: 1).

Paper/board capacity: 5,300,000 tons **Pulp capacity:** 850,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	3,778	4,033	1,635	1,920	890	949
Board	887	954	157	204	186	214
Total	**4,665**	**4,987**	**1,792**	**2,124**	**1,076**	**1,163**
Chemical woodpulp	205	218	1,712	1,938	50	36
Mechanicals, other pulps	506	519	110	147	3	8
Total	**711**	**737**	**1,822**	**2,085**	**53**	**44**
Market pulp	230	250	1,822	2,085	53	44

Japan

Population: 122,000,000. Per capita consumption of paper and board: 185 kg/407 lb. Paper and board mills: 489. Pulp mills: 61 (sulfate: 37; sulfite: 4; semichemical: 9; mechanical: 27; nonwood: 3).

Paper/board capacity: 25,286,000 tons **Pulp capacity:** 12,571,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	18,238	19,535	815	818	638	608
Board	2,824	3,001	38	47	202	206
Total	**21,062**	**22,536**	**853**	**865**	**840**	**814**
Chemical woodpulp	7,176	7,606	1,868	2,029	37	15
Mechanicals, other pulps	2,036	2,126	694	700	2	1
Total	**9,212**	**9,732**	**2,562**	**2,729**	**39**	**16**
Market pulp	937	956	2,562	2,729	39	16

Korea, Rep. of

Population: 42,082,000. Per capita consumption of paper and board: 70 kg/153 lb. Paper and board mills: 150e. Pulp mills: 5 (sulfate: 1; mechanical: 4).

Paper/board capacity: 3,421,000 tons **Pulp capacity:** 427,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	2,207	2,506	123	158	105	116
Board	567	656	5	6	176	282
Total	**2,774**	**3,162**	**128**	**164**	**281**	**398**
Chemical woodpulp	144	147	677	739	0	0
Mechanicals, other pulps	143	168	63	60	0	0
Total	**287**	**315**	**740**	**799**	**0**	**0**
Market pulp	144	147	740	799	0	0

Mexico

Population: 82,000,000. Per capita consumption of paper and board: 29 kg/64 lb. Paper and board mills: 64. Pulp mills: 15 (sulfate: 8; mechanical 2; nonwood: 5).

Paper/board capacity: 3,337,000 tons **Pulp capacity:** 947,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	2,199	2,299	68	61	135	243
Board	271	276	3	5	—	—
Total	**2,470**	**2,575**	**71**	**66**	**135**	**243**
Chemical woodpulp	422	438	312	454	—	20
Bagasse/straw	228	227	—	—	—	—
Mechanical, other pulps	124	134	33	25	—	—
Total	**774**	**799**	**345**	**479**	**—**	**20**
Market pulp	265	—	—	—	—	—

Netherlands

Population: 11,661,000. Per capita consumption of paper and board: 181 kg/398 lb. Paper and board mills: 32. Pulp mills: 3 (mechanical: 2; nonwood: 1).

Paper/board capacity: 2,333,000 tons **Pulp capacity:** 198,000
Operating rate 1987: 94% **Operating rate 1987:** 68%

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	1,375	1,495	1,514	1,580	887	1,028
Board	654	673	320	338	387	411
Total	**2,029**	**2,168**	**1,834**	**1,918**	**1,274**	**1,439**
Chemical woodpulp	0	0	568	561	24	31
Mechanicals, other pulps	133	135	25	26	2	3
Total	**133**	**135**	**593**	**587**	**26**	**34**
Market pulp	—	—	—	—	—	—

Spain

Population: 39,310,648. Per capita consumption of paper and board: 90 kg/198 lb. Paper and board mils: 163. Pulp mills: 26 (sulfate: 24; sulfite: 1; mechanical: 5; nonwood: 6).

Paper/board capacity: 3,600,000 tons **Pulp capacity:** 1,720,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	2,812	2,931	617	689	343	405
Board	340	357	40	54	93	103
Total	**3,152**	**3,288**	**657**	**743**	**436**	**508**
Chemical woodpulp	1,301	1,377	435	419	428	506
Mechanicals, other pulps	203	219	9	9	6	7
Total	**1,504**	**1,596**	**444**	**428**	**434**	**513**
Market pulp	706	803	444	428	434	513

Sweden

Population: 8,400,000. Per capita consumption of paper and board: 233 kg/513 lb. Paper and board mills: 55. Pulp mills: 55 (sulfate: 25; sulfite: 7; semichemical: 2; mechanical: 21).

Paper/board capacity: 8,210,000 tons **Pulp capacity:** 10,490,000 tons

(000 metric tons)

	Production		Imports		Exports	
	1986	1987	1986	1987	1986	1987
Paper	6,152	6,582	192	203	4,707	5,084
Board	1,211	1,229	77	85	929	1,010
Total	**7,363**	**7,811**	**269**	**288**	**5,636**	**6,094**
Chemical woodpulp	6,669	7,001	154	139	2,352	2,416
Mechanicals, other pulps	2,726	2,972	4	5	589	619
Total	**9,395**	**9,973**	**158**	**144**	**2,941**	**3,035**
Market pulp	3,436	3,526	—	—	2,941	3,035

print manufacturer ANM and half of Pisa, the Brazilian newsprint producer.

Expansion can also be expected among New Zealand's other companies. Now that NZFP's future has been decided, a big investment program at its Kinleith mill will raise capacity by 130,000 tpy of paper and board. And Caxton Paper Mills Ltd. is also considering a new kraft pulp line for the early 1990s, as well as a new CTMP line.

1987 was a good year for two Asian countries—Indonesia and Thailand. In Indonesia, long-awaited capital spending projects are now under way, including a new integrated sack kraft and linerboard mill in northern Sumatra, a greenfield dissolving and paper-grade pulp mill (also in northern Sumatra), and a new coated paper line. Overall, the country's output has risen strongly, and exports are growing fast.

Perhaps the only bleak spots in Asia this year are the countries of the Indian subcontinent. Chronic problems of poor fiber supply, expensive power, and labor unrest will have to be overcome before the full potential of these countries can be met. Even so, Indian production of paper and board did improve to 1.89 million tons in 1987, up 5% from 1986. ■

LATIN AMERICA

Optimism is a key word of the Latin American pulp and paper industry in mid-1988. In Brazil, Chile, Argentina, Venezuela, and Colombia, the outlook for the pulp and paper industry has rarely been so bright in the past few years. Despite the profound economic difficulties facing these countries, total output and consumption of pulp and paper are rising strongly and imports are relatively static. Equally important to the future of the industry, major expansion projects that had long been gathering dust now seem set to become reality, some of them with help from foreign capital.

Having broken through the 10-million-ton barrier for the first time in 1986, paper and board output from the continent's producers grew by 5%—or just over a half-million tons—in 1987. Total consumption of paper and board was over 11 million tons, a rise of 5.1%. The growth in pulp output was a more modest 1.9% to 6.99 million tons.

Brazil is by far the major producer, accounting for 44.5% of all paper and board produced in Latin America as well as 57.7% of its pulp output. Last year was another chaotic one for the country's economy, with record inflation of 360%, rising taxes, GNP growth of only 2%, and some tough bargaining on rescheduling the $120-billion foreign debt. But positive signs for the future are the balance of payments surplus, which was a steady $1 million/ month in 1987, and plans to convert the huge debt into venture capital, freeing funds for industrial investment.

Official Brazilian government financing agencies are planning to spend $5.06 billion in the next four years on pulp capacity expansions. Besides those at Aracruz Celulose, Cenibra, and Riocell, new projects have come to the fore, including Proir, a joint venture between 11 nonintegrated mills to build their own pulp mill; Copener, an energy company that has large plantations of eucalyptus originally grown for fuel but, with falling oil prices, now considered more suitable for pulping; and a reactivation of the Guatapara project by Grupo Votorantin. Also, a joint venture between CVRD and Suzano will build a new 350,000-tpy eucalyptus pulp mill in Bahia do Sul. If these projects proceed (and it is likely that several will) the net addition to Brazil's pulp capacity will be over 3 million tpy by the end of 1992. New paper machine announcements can be expected.

Expansion is the key word in Chile as well, much of it funded with foreign capital. Three important new market pulp lines, two softwood and one hardwood, are scheduled for startup by the end of 1992. U.S. capital is involved in one of the softwood lines, a new $500-million, 315,000-tpy greenfield pulp mill near Nacimiento to be built by CMPC in cooperation with Simpson Paper Co. of California. Simpson will hold a 50% share in the project. Celulosa Arauco y Constitucion is also planning a new $450-million, 750-tpd pulp line at its Arauco mill. Both of these facilities will use Chilean radiata pine as raw material.

Although the first major investment is still being awaited, Argentina is beginning to attract investor attention. An emerging stable democracy and modest improvements seem to be spurring their interest. Domestic companies are embarking on expansion projects meanwhile. Two of them, Celulosa Puerto Piray's 210,000-tpy bleached softwood kraft mill and the Cuatiara project, will on completion raise the country's softwood pulp output by 50% and double its capacity of printing/writing papers.

Expansion fever is also apparent in Venezuela. All of the major domestic mills have plans to raise output, and foreign investment is again entering the country. This time Abitibi-Price Inc. of Canada, Bowater Inc. of the U.S., the Venezuelan government, and Venezuelan publishers have signed a letter of intent to build a 200,000-tpy newsprint machine for startup in 1991.

Moving to Central America, the picture is somewhat less bright. Many countries are still in a state of military and political uncertainty. However, for the region's largest producer, Mexico, a big improvement in

WORLD PULP, PAPER, AND BOARD INDUSTRY AT A GLANCE

Continent/ country	Population (1,000)	Number of mills P&B	Number of mills Pulp	Capacity (1,000 tons) P&B	Capacity (1,000 tons) Pulp	Per capita (lb)	Apparent consumption (1,000 tons) P&B 1986	P&B 1987	Pulp 1986	Pulp 1987	Production (1,000 tons) P&B 1986	P&B 1987	Pulp 1986	Pulp 1987
EUROPE														
Belgium[1]	10,000	14	2	1,120	450	375	1,703	1,862	597	710	850	1,029	304	382
Denmark	5,200	11	3	350	145	404	954	1,022	146	135	333	323	95	81
France	55,000	147	21	6,639	2,240	274	6,956	7,262	3,446	3,453	5,594	5,832	2,022	2,092
Germany, Fed. Rep.	61,150	175	35	10,931	2,490	406	11,286	11,674	5,168	5,319	9,407	9,924	2,219	2,259
Greece	9,700	22	2	470	65	132	583	640	217	230	373	416	26	50
Ireland	3,595	2	0	50	0	176	288	320	11	15	15	30	0	0
Italy	57,319	340	21	5,300	850	207	5,381	5,948	2,480	2,775	4,665	4,987	711	734
Netherlands	11,661	32	3	2,333	198	488	2,589	2,647	700	688	2,029	2,168	133	135
Portugal	10,230	94	8	805	1,390	126	587	602	438	452	665	827	1,406	1,462
Spain	39,311	163	26	3,600	1,720	189	3,372	3,570	1,514	1,515	3,153	3,288	1,504	1,598
United Kingdom	56,650	93	6	4,351	490	313	8,068	8,734	2,081	2,325	3,941	4,183	399	389
EEC	**320,616**	**1,093**	**127**	**35,949**	**10,038**	**287**	**41,767**	**44,281**	**16,798**	**17,617**	**31,025**	**32,807**	**8,818**	**9,182**
Finland	4,932	46	47	8,590	9,085	444	995	904	6,524	6,918	7,549	8,012	7,928	8,467
Norway	4,180	19	24	1,850	2,125	312	593	589	1,393	1,382	1,573	1,590	1,896	1,889
Sweden	8,400	55	55	8,210	10,490	523	1,998	2,005	6,612	7,082	7,363	7,811	9,305	9,973
Nordic	**17,512**	**120**	**126**	**18,650**	**21,700**	**451**	**3,586**	**3,478**	**14,529**	**15,382**	**16,485**	**17,413**	**19,219**	**20,329**
Austria	7,572	33	15	2,709	1,603	279	959	1,001	1,330	1,408	2,183	2,357	1,344	1,333
Iceland	244	0	0	0	0	244	27	27	0	0	0	0	0	0
Malta	355	0	0	0	0	62	10	10	0	0	0	0	0	0
Switzerland	6,566	29	6	1,150	385	416	1,243	1,327	594	596	1,087	1,147	310	324
Other W. Europe	**14,737**	**62**	**21**	**3,859**	**1,988**	**334**	**2,239**	**2,365**	**1,924**	**2,004**	**3,270**	**3,504**	**1,654**	**1,657**
Total W. Europe	**352,865**	**1,275**	**274**	**58,458**	**33,706**	**297**	**47,592**	**50,124**	**33,251**	**35,003**	**50,780**	**53,724**	**29,691**	**31,168**
Albania	2,970	4	4	15	15	13	17	17	10	10	10	10	10	10
Bulgaria	9,000	15	9	520	260	108	440	440	270	270	350	350	220	220
Czechoslovakia	15,587	38	23	1,261	1,223	165	1,167	1,181	736	740	1,247	1,261	1,086	1,090
German. Dem. Rep.	16,640	21	19	1,500	750	183	1,381	1,356	811	835	1,327	1,339	674	672
Hungary	10,100	10	5	550	150	149	686	668	249	272	517	522	62	69
Poland	37,800	48	21	1,500	1,086	80	1,370	1,391	1,007	1,090	1,320	1,375	876	906
Romania	22,820	20	12	850	750	68	710	728	650	660	750	768	600	610
USSR	275,000	84	57	11,500	10,000	79	9,850	10,486	10,208	10,855	10,395	11,036	10,963	11,610
Yugoslavia	23,000	30	21	1,600	950	116	1,210	1,055	936	879	1,350	1,307	840	800
E. Europe	**412,917**	**270**	**171**	**19,296**	**15,184**	**90**	**16,831**	**17,322**	**14,877**	**15,611**	**17,266**	**17,988**	**15,331**	**15,987**
Total Europe	**765,782**	**1,545**	**445**	**77,754**	**48,890**	**185**	**64,423**	**67,446**	**48,128**	**50,614**	**68,046**	**71,682**	**45,022**	**47,155**
NORTH AMERICA														
Canada	25,600	77	34	16,520	24,740	469	5,461	5,594	14,048	14,967	15,261	16,046	21,688	23,021
United States	243,773	555	219	70,780	55,170	640	70,969	74,488	51,837	54,000	64,307	67,544	51,726	54,036
North America	**269,373**	**632**	**253**	**87,300**	**79,910**	**624**	**76,430**	**80,082**	**65,885**	**68,967**	**79,568**	**83,590**	**73,414**	**77,057**
ASIA														
Afghanistan	16,000	0	0	0	0	<1	2	2	0	0	0	0	0	0
Bangladesh	105,000	8	9	127	126	2	114	117	95	99	113	115	75	83
Bahrain	400	0	0	0	0	33	6	6	0	0	0	0	0	0
Bhutan	1,400	0	0	0	0	2	1	1	0	0	0	0	0	0
Brunei	200	0	0	0	0	33	3	3	0	0	0	0	0	0
Burma	37,850	3	2	31	30	3	44	47	25	27	24	27	27	29
China, Peo. Rep.[2]	1,080,000	50	50	12,500	9,000	22	10,897	12,427	7,152	7,882	9,966	11,411	6,583	7,204
Cyprus	650	1	0	10	0	108	32	37	1	1	2	2	0	0
Hong Kong	5,500	2	0	15	0	325	812	812	0	0	12	12	0	0
India	700,000	300	100	2,760	1,450	6	2,050	2,136	1,340	1,350	1,800	1,888	1,050	1,050
Indonesia	165,150	36	16	980	442	10	762	794	505	500	642	775	250	270
Iran	50,000	6	2	300	188	15	335	422	82	75	120	105	66	60
Iraq	15,500	2	2	144	90	10	70	65	47	33	30	25	30	14
Israel	4,500	5	0	170	0	198	404	471	66	68	159	174	0	0
Japan	122,000	489	61	25,286	12,571	380	21,078	22,589	11,765	12,448	21,082	22,537	9,240	9,733
Jordan	3,600	3	0	16	0	39	64	78	11	12	14	14	0	0
Kampuchea	6,200	0	0	0	0	<1	2	2	0	0	0	0	0	0
Korea, Peo. Rep.	20,000	6	2	100	80	9	80	80	70	70	80	80	60	60
Korea, Rep.	42,082	150	5	3,421	427	137	2,620	2,929	1,027	1,114	2,773	3,163	287	315
Kuwait	1,910	1	0	25	0	105	91	91	10	10	23	23	0	0
Laos	4,000	0	0	0	0	<1	1	1	0	0	0	0	0	0
Lebanon	2,700	3	0	50	0	61	75	75	5	5	15	15	0	0
Macao	300	0	0	0	0	29	4	4	0	0	0	0	0	0
Malaysia	15,790	13	1	220	92	60	429	455	17	32	70	70	10	10
Mongolia	1,950	1	1	10	6	23	20	20	5	5	5	5	5	5
Nepal	17,576	2	2	7	7	2	18	19	3	5	3	5	3	5
Oman	1,200	0	0	0	0	11	6	6	0	0	0	0	0	0
Pakistan	88,880	15	3	180	100	7	277	344	109	116	106	98	86	75
Philippines	56,000	23	3	515	208	15	372	445	120	123	254	308	121	146
Qatar	300	0	0	0	0	73	10	10	0	0	0	0	0	0
Saudi Arabia	9,000	0	0	0	0	24	100	100	0	0	0	0	0	0
Singapore	2,500	2	0	31	0	195	222	220	6	6	10	10	0	0
Sri Lanka	15,000	2	2	27	26	11	77	77	12	15	27	27	7	8
Syria	10,500	12	12	6	6	17	80	80	5	5	5	5	5	5
Taiwan	19,725	152	3	3,170	500	284	2,545	2,880	600	713	2,527	2,737	394	416
Thailand	52,000	33	5	720	150	27	630	715	176	200	478	560	117	150
Turkey	52,500	39	17	1,100	550	29	699	880	534	540	861	840	454	450
United Arab Emirates	1,000	0	0	0	0	15	7	7	0	0	0	0	0	0
Vietnam	60,000	30	1	120	35	2	66	66	55	55	60	60	25	25
Yemen Arab Rep.	6,000	0	0	0	0	<1	2	2	0	0	0	0	0	0
Yemen Dem. Rep.	2,200	0	0	0	0	2	2	2	0	0	0	0	0	0
Asia	**2,797,063**	**1,389**	**299**	**52,023**	**28,084**	**35**	**45,109**	**49,517**	**23,843**	**25,509**	**41,061**	**46,989**	**18,881**	**20,111**

Note: some figures are estimates. See individual country listings for details.

1. Import figures are for Belgium-Luxembourg. 2. People's Rep. China has an approximate total of 5,000 paper mills and 9,000 pulp mills. Only those with a capacity figure greater than 30,000 tpy are included here.

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Continent/ country	Popu- lation (1,000)	Number of mills P&B	Number of mills Pulp	Capacity (1,000 tons) P&B	Capacity (1,000 tons) Pulp	Per capita (lb)	Apparent consumption (1,000 tons) P&B 1986	P&B 1987	Pulp 1986	Pulp 1987	Production (1,000 tons) P&B 1986	P&B 1987	Pulp 1986	Pulp 1987
LATIN AMERICA														
Argentina	31,000	100	25	1,300	900	75	1,058	1,140	701	708	991	1,064	723	725
Bahamas	200	0	0	0	0	165	15	15	0	0	0	0	0	0
Barbados	300	0	0	0	0	51	7	7	0	0	0	0	0	0
Belize	200	0	0	0	0	33	3	3	0	0	0	0	0	0
Bolivia	6,200	1	0	2	0	7	21	21	0	0	1	1	0	0
Brazil	141,500	146	38	5,364	4,474	64	4,114	4,337	3,141	3,260	4,525	4,678	3,997	4,031
Chile	12,327	7	7	423	376	53	296	350	285	338	388	442	848	861
Colombia	30,346	24	5	560	264	38	528	573	281	293	457	488	234	247
Costa Rica	2,655	2	1	18	25	99	120	122	7	7	12	12	6	6
Cuba	10,105	9	3	150	60	71	325	325	90	90	125	125	40	40
Dominican Rep.	6,588	2	0	15	0	22	65	64	4	4	9	9	0	0
Ecuador	10,000	5	1	65	35	13	59	97	6	17	59	67	6	6
El Salvador	5,072	3	0	50	0	29	67	67	12	12	29	29	0	0
Guatemala	8,070	4	1	50	0	26	95	95	5	5	35	35	0	0
Guyana	800	0	0	0	0	19	7	7	0	0	0	0	0	0
Haiti	5,800	0	0	0	0	2	6	6	0	0	0	0	0	0
Honduras	4,500	0	0	0	0	14	29	29	0	0	0	0	0	0
Jamaica	2,100	1	0	15	0	44	42	43	1	1	12	13	0	0
Mexico	82,000	64	15	3,337	947	64	2,405	2,398	1,117	1,259	2,470	2,575	772	800
Neth. Antilles	300	0	0	0	0	22	3	3	0	0	0	0	0	0
Nicaragua	3,000	0	0	0	0	18	24	24	0	0	0	0	0	0
Panama	2,038	3	0	30	0	90	83	83	1	1	28	28	0	0
Paraguay	3,722	3	0	25	0	15	26	26	0	0	13	13	0	0
Peru	20,207	14	3	361	311	27	250	285	178	217	184	214	122	145
Surinam	400	0	0	0	0	61	11	11	0	0	0	0	0	0
Trinidad/Tobago	1,200	0	0	0	0	62	34	34	0	0	0	0	0	0
Uruguay	3,000	5	2	83	27	37	51	54	33	36	54	48	24	26
Venezuela	19,000	12	3	791	175	89	768	833	308	396	612	675	88	101
Latin America	**412,630**	**405**	**104**	**12,639**	**8,094**	**58**	**10,512**	**11,052**	**6,170**	**6,644**	**10,004**	**10,516**	**6,960**	**6,988**
AUSTRALASIA														
Australia	16,249	18	19	2,035	1,100	315	2,325	2,373	1,073	1,174	1,642	1,678	870	964
Fiji	700	0	0	0	0	22	7	7	0	0	0	0	0	0
New Zealand	3,284	6	7	807	1,437	352	525	599	629	816	671	644	1,110	1,108
Papua New Guinea	3,500	0	0	0	0	4	6	6	0	0	0	0	0	0
Samoa	200	0	0	0	0	33	3	3	0	0	0	0	0	0
Australasia	**23,933**	**24**	**26**	**2,842**	**2,537**	**264**	**2,866**	**2,988**	**1,702**	**1,990**	**2,313**	**2,322**	**1,980**	**2,072**
AFRICA														
Algeria	22,025	6	3	160	170	18	180	180	95	95	110	110	35	35
Angola	7,950	2	1	30	45	5	19	19	15	15	15	15	15	15
Benin	4,000	0	0	0	0	2	4	4	0	0	0	0	0	0
Botswana	1,100	0	0	0	0	2	1	1	0	0	0	0	0	0
Burkina Faso	6,900	0	0	0	0	<1	1	1	0	0	0	0	0	0
Burundi	5,000	0	0	0	0	2	4	4	0	0	0	0	0	0
Cameroon	9,800	0	0	0	0	2	10	10	0	0	0	0	0	0
Central African Rep.	2,700	0	0	0	0	<1	1	1	0	0	0	0	0	0
Chad	5,200	0	0	0	0	<1	1	1	0	0	0	0	0	0
Congo	1,800	0	0	0	0	1	1	1	0	0	0	0	0	0
Egypt	49,000	16	3	180	80	24	522	550	90	100	147	160	60	70
Ethiopia	42,290	1	0	15	0	1	20	21	4	4	10	11	0	0
Gabon	900	0	0	0	0	5	2	2	0	0	0	0	0	0
Gambia	800	0	0	0	0	6	2	2	0	0	0	0	0	0
Ghana	13,200	0	0	0	0	2	9	9	0	0	0	0	0	0
Guinea	5,700	0	0	0	0	2	4	4	0	0	0	0	0	0
Ivory Coast	10,180	7	0	80	0	26	121	123	83	124	44	46	0	0
Kenya	23,000	5	6	103	100	10	107	119	74	100	96	106	70	96
Lesotho	1,500	0	0	0	0	2	1	1	0	0	0	0	0	0
Liberia	2,200	0	0	0	0	1	1	1	0	0	0	0	0	0
Libya	4,000	10	0	10	0	8	14	14	6	6	6	6	0	0
Madagascar	10,000	2	2	28	7	2	11	8	9	7	11	8	5	4
Malawi	7,900	0	0	0	0	2	9	9	0	0	0	0	0	0
Mali	7,700	0	0	0	0	<1	1	1	0	0	0	0	0	0
Mauritania	1,700	0	0	0	0	5	4	4	0	0	0	0	0	0
Mauritius	1,000	0	0	0	0	13	6	6	0	0	0	0	0	0
Morocco	24,800	8	1	126	100	16	181	184	32	53	109	115	81	101
Mozambique	13,776	2	0	10	0	3	17	17	3	1	2	2	0	0
Niger	6,500	0	0	0	0	1	3	3	0	0	0	0	0	0
Nigeria	95,000	5	2	170	140	9	403	403	44	51	77	79	32	39
Rwanda	4,600	0	0	0	0	2	5	5	0	0	0	0	0	0
Senegal	6,600	0	0	0	0	1	4	4	0	0	0	0	0	0
Sierra Leone	3,900	0	0	0	0	<1	1	1	0	0	0	0	0	0
Somalia	7,600	0	0	0	0	<1	2	2	0	0	0	0	0	0
South Africa	32,465	17	10	2,000	2,160	88	1,295	1,260	1,265	1,230	1,811	1,581	1,875	1,840
Sudan	21,500	2	0	12	0	5	45	50	4	4	9	10	0	0
Swaziland	650	0	1	0	180	7	2	2	181	180	0	0	181	180
Tanzania	21,733	2	2	60	65	5	45	55	25	35	25	35	25	35
Togo	3,000	0	0	0	0	2	2	2	0	0	0	0	0	0
Tunisia	7,352	5	1	30	25	27	90	90	30	30	30	30	20	20
Uganda	14,735	1	0	5	0	<1	5	5	0	0	2	2	0	0
Zaire	32,985	1	0	4	0	<1	10	11	2	2	2	3	0	0
Zambia	7,535	1	0	10	0	2	5	7	2	0	5	3	0	0
Zimbabwe	8,400	3	2	90	40	22	85	84	55	59	76	80	32	37
Africa	**560,676**	**96**	**34**	**3,123**	**3,112**	**13**	**3,256**	**3,281**	**2,019**	**2,096**	**2,387**	**2,402**	**2,431**	**2,472**
TOTAL WORLD	**4,829,457**	**4,091**	**1,161**	**236,881**	**188,827**	**92**	**202,596**	**214,366**	**147,747**	**155,820**	**203,379**	**215,811**	**148,601**	**155,956**

TOP 20 PRODUCING NATIONS

Taiwan

Population: 19,725,000. Per capita consumption of paper and board: 144 kg/317 lb. Paper and board mills: 152. Pulp mills: 3 (sulfate: 2; nonwood: 1).

Paper/board capacity: 3,170,000 tons **Pulp capacity:** 500,000 tons
Operating rate 1987: 86% **Operating rate 1987:** 83%

(000 metric tons)

	Production		Imports		Exports	
	1986	**1987**	**1986**	**1987**	**1986**	**1987**
Paper	1,917	2,091	156	234	69	68
Board	610	646	12	54	80	78
Total	**2,527**	**2,737**	**168**	**288**	**149**	**146**
Chemical woodpulp	314	331	282	335	79	65
Bleached bagasse	70	73	—	—	28	16
Mechanicals, other pulps	11	12	32	44	1	1
Total	**394**	**416**	**314**	**379**	**108**	**82**
Market pulp	326	328	314	379	108	82

United Kingdom

Population: 56,650,000. Per capita consumption of paper and board: 154 kg/339 lb. Paper and board mills: 93. Pulp mills: 6 (semichemical: 2; mechanical: 2; nonwood: 2).

Paper/board capacity: 4,351,000 tons **Pulp capacity:** 490,000 tons
Operating rate 1987: 96% **Operating rate 1987:** 80%

(000 metric tons)

	Production		Imports		Exports	
	1986	**1987**	**1986**	**1987**	**1986**	**1987**
Paper	2,872	3,074	3,817	4,232	367	410
Other paper/board	1,069	1,110	940	1,051	263	322
Total	**3,941**	**4,184**	**4,757**	**5,283**	**630**	**732**
Chemical woodpulp	—	—	1,465	1,737	3	1
Mechanicals, other pulps	—	—	222	203	2	3
Total	**399**	**389**	**1,687**	**1,940**	**5**	**4**
Market pulp	—	—	—	—	—	—

United States

Population: 243,773,000. Per capita consumption of paper and board: 303 kg/666 lb. Paper and board mills: 555. Pulp mills: 219 (sulfate: 117; sulfite: 18; semichemical: 39; mechanical: 65).

Paper/board capacity: 70,780 tons **Pulp capacity:** 55,170 tons
Operating rate 1987: 95% **Operating rate 1987:** 98%

(000 metric tons)

	Production		Imports		Exports	
	1986	**1987**	**1986**	**1987**	**1986**	**1987**
Paper	53,844	56,646	10,256	10,864	2,847	2,978
Board	10,464	10,899	95	137	842	1,079
Total	**64,308**	**67,545**	**10,351**	**11,001**	**3,689**	**4,057**
Chemical woodpulp	45,607	47,663	3,878	4138	3,378	3,749
Mechanicals, other pulps	6,119	6,374	278	263	667	687
Total	**51,726**	**54,037**	**4,156**	**4,401**	**4,045**	**4,436**
Market pulp	6,879	7,374	2,832	2,935	4,055	4,373

U.S.S.R.

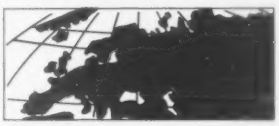
Population: 275,000,000. Per capita consumption of paper and board: 40 kg/88 lbe. Paper and board mills: 84. Pulp mills: 57.

Paper/board capacity: 11,500,000e tons **Pulp capacity:** 10,000,000e tons

(000 metric tons)

	Production		Imports		Exports	
	1986	**1987**	**1986**	**1987**	**1986**	**1987**
Paper	6,156	6,435e	512	520e	688	700
Board	4,239	4,601e	102	105e	471	475
Total	**10,395**	**11,036e**	**614**	**625e**	**1,159**	**1,175**
Chemical woodpulp	9,363e	9,910e	—	—	1,105	1,105
Mechanicals, other pulps	1,600e	1,700e	—	—	—	—
Total	**10,963e**	**11,610e**	**350**	**350e**	**1,105**	**1,105**
Market pulp	—	—	—	—	—	—

the country's economic performance was seen in 1987. Paper and board output grew 4.3%, to over 2.5 million tons. Some restructuring is in progress within the paper industry, with Grupo Industrial Durango taking a lead. This company, which acquired the 100,000-tpy Atenquique pulp mill from the government last year, has also acquired the Centauro project, a large linerboard paper machine crated and awaiting construction since 1981. Durango, which last year also became the country's first supplier of market CTMP, plans to start the linerboard machine late next year. ■



EUROPE

All of Europe, western and eastern, made more paper and board than ever before; it also used more. Output in 1987 was 71.7 million tons, up 5.4% from 1986, making a five-year run of annual records for a total increase of 23% since 1982. Apparent consumption has behaved in a similar fashion but at a slightly slower pace: 67.4 million tons in 1987, up 4.7% from 1986, continuing five years of record-breakers for a total increase of 19%. Demand for newsprint and other printing papers was particularly strong, beating many forecasts and confounding the predictions of oversupply. The growth of new capital investment in western Europe has continued apace in all paper and board sectors as well as in pulp.

Pulp production also continued to climb. In 1987, it totaled 47.2 million tons, up 4.7% from the previous year, while consumption just passed 50 million tons for the first time, up 5.2%. For both, 1987 was the fifth record year in a row.

Of the 12 nations of the European Community (EC), half had record production years to give a total paper and board output of 32.8 million tons, an increase of 5.7%. Notable among these was Belgium, which joined the million-ton club for the first time. The dominant producer, Fed. Rep. Germany, which makes one-third of the EC total, enjoyed yet another record year. However, it did not enjoy the effect of a strong currency on its export trade nor the advantages that it brought competing importers, who won more of an expanding home market than domestic mills. By contrast, export tonnage increased by 12% but by only 5% by value.

French pulp and paper mills had an excellent year, and both the amount of capital investment in new capacity and the level of foreign interest are increasing fast. What happens in France may mirror what is already happening in the U.K. It continued to enjoy its revival, particularly in the newsprint sector. As two more greenfield mills plus other expansions are planned, it is likely to become increasingly self-sufficient, although foreign ownership of the industry continues to increase

as well. Italy moved out of the doldrums, and producers had a good year helped by a 10.5% rise in apparent consumption to a record level, though imports also increased. The slow process of restructuring, essentially fewer big mills owned by fewer companies, continues.

Spain and Portugal joined the EC in 1986, bringing significant new pulp capacity, over 3 million tons, mostly of popular eucalyptus pulp. While their pulp industries benefited from the increase in market prices in 1987, their paper industries are seeing rising consumption met by rising imports, made easier by EC membership. But this factor aside, Spain's paper mills have had three good years and further expansion is expected. Portugal, on the other hand, was one of the few countries where paper output declined in 1987, partly because of a rebuild at a major kraftliner producer. However, several expansion programs are being planned.

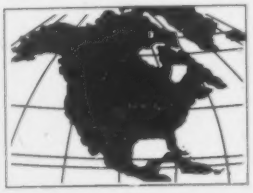
"Full capacity utilization" was the most common term used to describe 1987 for the three Nordic nations, which depend strongly on their exports of forest products. Finland crossed 8 million tons of paper and board output for the first time, and Sweden is expected to do so this year. By contrast, Norway's output has stayed around 1.6 million tons for the last three years, and for some sectors output was limited by capacity.

Strong demand on world markets, particularly the EC, for main exports (pulp, newsprint, printing/writing papers and kraftliner) meant their mills had a highly productive and profitable year. In both countries, a period of mergers and acquisitions is resulting in larger, more internationally competitive companies, most of which are undertaking considerable expansion in pulp and papermaking capacity. These countries are additionally continuing the process of buying into the EC's papermaking and paper-distribution chain, in preparation—along with some trepidation—for the single open internal market planned by the EC for 1992.

Austria too is concerned about this development, as it also depends on this market for its exports. Last year was its eleventh record year in a row, though each annual increase has been modest. Further expansions are being completed, such that the export trade will become more important. Partly for this reason, a lobby group in Austria wants it to apply for EC membership.

The fact that the three Nordic nations alone make nearly as much as all the eastern European nations, including the U.S.S.R., reflects both the Nordic dynamism and the difficulties facing some of the eastern Europeans. Shortages of raw materials and economic problems have kept capital investment low in this industry for most of these countries. However, they should not be underrated in the future, as the potential exists for higher output as soon as conditions permit.

One exception is the U.S.S.R. Preliminary figures indicate output once again reached a record level, and several capital investment projects are planned, some with foreign partners. ■



NORTH AMERICA

Last year was a highly profitable one for pulp and paper producers in North America. Domestic demand was strong, increasing at rates that were higher than GNP, and exports were assisted by the low value of the U.S. dollar against other currencies. Pulp and paper mills operated at near full capacity, and many of them recorded record profits for the year.

Total North American output of paper and board reached a record-high 83.6 million tons in 1987, up 5% from 1986. Among individual grades, newsprint output was up 4% at 14.97 million tons, printing/writing papers were up 6.5% at 21.25 million tons, and packaging grades were up 5.1% at 28.43 million tons (kraft linerboard production rose 7.1% to 16.88 million tons). Total imports rose by 6.1% to 11.7 million tons, while total exports reached 15.2 million tons, up 7.3% from 1986.

Pulp output climbed to 77.1 million tons, also up by about 5%. Output of market pulp was 15.4 million tons, a rise of 8% from 1986. Pulp exports were 11.9 million tons, an increase of 6.6%.

Domestic demand for paper and board was strong. The American Paper Institute estimated that real per capita consumption in the U.S. climbed above 300 kg (660 lb) for the first time to 302.5 kg (665.5 lb). Apparent consumption—not allowing for stock holding—was at 291.1 kg (640.4 lb).

Printing/writing papers shipments in the U.S. were up 5.9% to 18.6 million tons, reflecting the 6.9% growth in output of the printing and publishing industry and a 12% increase in the use of office copy papers. U.S. output of casemaking materials was 6.7% above 1986 at 23.12 million tons, with production destined for the domestic market increasing 7.5% and exports increasing 4.7% at 2.14 million tons.

Canada's industry recorded total shipments in 1987 of 24.3 million tons, or 98% of installed capacity. Newsprint, packaging, and market pulp sectors all operated at 98% or 99% of capacity. Printing/writing papers shipments increased 9% to 3.1 million tons, in line with fast-growing demand from the U.S. and Canada. Packaging paper and board shipments were 3,275,000 tons, an increase of 4% from 1986. Shipments of newsprint were up 4% to 9.7 million tons, and shipments into the U.S. and Canadian markets were up 5%. Market pulp exports were up 4%, or 300,000 tons.

In 1988, it seems likely that new output records will be established. GNP growth will probably be be 2% to 2.5% for the year in both Canada and the U.S., and paper and board output and demand is expected to increase at the same rate. ■

U.S. PRODUCERS SHOULD START LOOKING SOUTH FOR FAST-GROWING MARKETS

Companies should shift focus from the Far East to Central America and Mexico, where fast population growth presages strong demand

By REGINA McGRATH, News Editor

By the year 2000, between 22% and 25% of U.S. exports of paper and allied products could be crossing the border to Mexico and the Caribbean—a 17% increase over 1987 levels. This forecast is based largely on the fact that population in these areas will grow rapidly during the period. Consumer expectations will rise along with per capita income and spending, fueling demand for more sophisticated paper products. Increased tourism will augment these trends.

These are some of the conclusions reached in a study recently released and subsequently updated by the Forest Products Office of the U.S. Dept. of Commerce entitled *Developing Paper Products Markets in Mexico & the Caribbean*. The regions included in the study are Central America, the northern part of South America (including Colombia and Venezuela) and the island nations of the West Indies. Population in this area was estimated at 190 million in 1987. In that year, combined Mexican and Caribbean purchases of U.S. paper products surpassed dollar sales to Canada and Japan and were second only to the value of shipments sent to the European Community, Commerce reports.

One of the few generalizations that can be made about this region is that deforestation is occurring at an alarming rate. Costa Rica, Panama, and Venezuela have virtually banned commercial logging on most of their timberland. Much of the wood harvested in this area is used for firewood or is burned to provide farmland for the growing population. The political turmoil in which some of these countries find themselves is not conducive to making and implementing a long-term reforestation policy. The study concluded that by the year 2000, the rate and area of deforestation in this region will continue to exceed reforestation.

The U.S. will continue to play a leading role in supplying both woodfiber and wastepaper to these countries but should prepare itself to face stiff competition from Brazil, Chile, Canada, Scandinavia, and maybe Southeast Asia, the study's authors, L. Smith and G. Stanley, caution. Excluding secondary fiber, the region currently supplies approximately 30% of its total wood and nonwood fiber (bagasse) needs. It is unlikely that it will be able to improve on this percentage by 2000, the study notes.

Because of the lack of wood, wastepaper makes up a large part of the furnishes in paper mills of the region. Most of the paperstock is obtained from local recovery programs, but a large amount is imported from the U.S. Mexico is second only to Japan in wastepaper recovery, and about half of the raw material used in that country is wastepaper. For the region as a whole, wastepaper may constitute 40% or more of the region's annual papermaking requirements, the study says.

SATISFYING PAPER DEMAND. Because population in the region grew rapidly between 1974 and 1987, causing paper and board consumption to jump by over 50%, domestic producers of paper and pulp have been unable to satisfy domestic demand. In the last couple of years, domestic mills have accounted for 20% of the pulp and 30% of the paper and board consumed in the region. U.S. mills have traditionally made up most of the shortfall.

In 1987, U.S. paper industry exports to the area amounted to $1.1 billion—a 23% increase from 1986 levels, the Dept. of Commerce reports. U.S. exports of paper and allied products made up over 75% of all such exports to the region. This represents more than a 5% increase in U.S. market share from the prior year, due in part to increased tourism, increased regional business activity, and some strengthening of local currencies against the weak U.S. dollar, Commerce reports.

SHIPPING TO THE U.S. In 1987, shipments of paper and converted paper products from Mexico and the Caribbean to the U.S. were valued at $297 million—an 8% boost over the prior year. Mexico accounted for 90% of the total. (The updated study notes that Mexico was the third largest supplier of paper products to the U.S. in 1987, behind Canada and Finland, and is projected to reach second place by the year 2000.) An increasing number of small converting facilities, especially in the printing/writing and sanitary tissue grades, are projected to start up in the region in the next few years.

PLANS FOR IMPORT SUBSTITUTION. Mexico is almost self-sufficient in supplying its own paper and board needs. In 1986, it produced 2.47 million metric tons of paper and board, accounting for 97% of the country's total apparent consumption. Although U.S. export tonnage to Mexico rose by about 14% between 1985 and 1986, the increase was due mostly to increased exports of wastepaper and paperboard, while purchases of primary paper and board grades declined by 25.5% and 20.6%, respectively. The study notes that Mexico's huge debt will probably curtail state-sponsored expansion projects. In 1986, Mexico imported about 326,500 tons of pulp.

The study's authors note that tissue production is one of the most dynamic sectors of Mexico's industry. This sector is dominated by Kimberly-Clark de Mexico and Scott-San Cristóbal, which together account for almost 95% of the domestic sanitary tissue capacity in the country (about 350,000 tpy). As a result of its expertise in tissue production, Mexico has begun to export this grade to countries in Central America.

COLOMBIA. Since it produces none of its own, Colombia currently imports about 80,000 tpy of newsprint. Carton de Colombia SA, a subsidiary of Jefferson Smurfit Corp., has said it plans to spend $200 million to construct a 100,000-tpy newsprint mill in Colombia, but the project is opposed by newspaper publishers and could be hampered by the increasing violence that is tormenting the country. Colombia also imports significant quantities of pulp. In 1987, the U.S. sold Colombia $42-million worth of paper and related products, over half of which was kraft linerboard.

VENEZUELA. The idea of building a $600-million pulp and paper complex has been kicked around in Venezuela for some time. Called the Orinoco project, it would produce the country's first newsprint as well as make chemi-thermomechanical pulp (CTMP) and kraft linerboard. If the mill is built, it would eliminate approximately $6 million in business for U.S. newsprint exporters and would also make Venezuela self-sufficient in pulp in the near term. Venezuela may well scrap these plans in light of the fact that Abitibi-Price Inc. and Bowater Inc. are building a 200,000-metric-tpy greenfield newsprint mill near Ciudad Guayana. The two North American companies will each hold half of a 49% share in the mill, with the government and a group of publishers holding the controlling stake. It is unclear how much of the mill's output will be sold in Venezuela, since most of the mill's output is to be exported and marketed independently by Abitibi and Bowater. In 1987, the U.S. supplied over 60% of Venezuela's pulp and paper needs, with exports to that country amounting to $138 million.

CENTRAL AMERICA. One pulp mill and a dozen paper and board mills are located in Central America. Celgusa of Guatemala was slated to start up a 200,000-tpy kraft pulp mill in 1986, but construction has stalled due to a large project debt (about $250 million) and a lack of available wood reserves to supply the mill. It is said that the government has taken over the project and halted construction.

Central America is competing on the world market to some degree in converted sanitary paper products. Again, K-C and Scott are the companies that dominate here. Scott Paper Co. has reportedly proposed that it combine operations with Convertidora Nacional de Papel y Carton of Honduras to produce nonwoven materials used to make disposable diapers and other products. Converted products is the logical area for expansion in Central America because these facilities do not require a large capital investment or a highly skilled work force.

Currently, Central America buys from the U.S. a lot of packaging materials, such as linerboard, corrugating medium, and boxboard, as well as printing/writing paper. In 1987, U.S. shipments of paperboard to Central America amounted to $110 million, accounting for 66% of U.S. paper exports to that region. Much of this containerboard is used to make boxes for shipping agricultural products.

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TABLE 1: **U.S. exports to Mexico and the Caribbean in 1987 ($000).**

Country/market	Woodpulp	Wastepaper	Printing/ writing	Special industrial paper	Paperboard	Total sales[1]	1987 export share
Mexico	$165,811	$101,595	$10,988	$8,575	$49,570	$616,937	57.5%
Venezuela	77,563	7,267	11,337	3,644	26,294	137,516	12.8
Costa Rica	195	504	3,224	562	34,245	44,923	4.2
Panama	1,092	749	4,708	880	24,215	43,542	4.1
Colombia	3,790	584	3,373	1,145	26,995	41,699	3.9
Honduras	248	22	3,494	496	25,989	35,731	3.3
Guatemala	3,363	916	2,690	123	17,467	27,958	2.6
Dominican Rep.	326	176	2,537	364	10,190	22,229	2.1
Jamaica	—	3,198	2,247	558	16,846	18,026	1.7
El Salvador	349	—	2,996	566	8,137	14,203	1.3

1. Columns do not add to total because some export categories are not listed.
Source: Bureau of the Census, U.S. Dept. of Commerce.